Roman Project News

November 2021
Some project news items

• Mission CDR Sept 20-27
• Lots of things are being built and tested (more from Jeff)
• Formulation Science Working Group disbanded
  – Science Investigation teams contracts have ended
  – Held closeout workshop last week
Covid-19 impacts

• COVID-19 operations March 2020 - September 2021 affected project efficiency and global supply chains during project’s planned peak years

• Roman execution efficiency April 2020 – March 2021 averaged 70%
  – On-site work constraints, collaboration challenges etc

• Global supply chains experienced significant impacts
  – Increased no-bids; bid durations increased, sometimes doubling; vendors unable to offer expediting options; deliveries slipped, sometimes without warning; choke points developed,
  – Extremes of the supply chain impacts resulted in very large delays in a handful of significant deliveries;
    • 6 months longer for the WFI Beryllium Element Wheel
    • Global shortages in supply chain for raw materials drove multi-week delays from all composite vendors; put optical bench on critical path along with the element wheel
  – Schedule slack and then reserves were adjusted, applied, and eventually consumed to mitigate the impact to critical path -- led to an overall schedule replan
Cost and Schedule – some definitions

• Management Agreement (MA)
  – Agreement between NASA HQ and Roman project
  – Includes schedule and funding reserves held/controlled by the Roman project

• Agency Baseline Commitment (ABC)
  – Agreement between NASA HQ and stakeholders (e.g. congress)
  – Relative to MA, includes additional schedule and funding reserves held/controlled by NASA HQ
  – It is a big deal to change this!
Covid Replan

• Baseline schedule in Feb 2020
  – MA launch readiness date: Dec 2025
  – ABC launch readiness date: Oct 2026

• Carefully tracked covid-related cost and schedule impacts separately from everything else, assuming covid impacts continue through Sept 2021

• Covid Replan schedule (May 2021):
  – MA launch readiness date: July 2026
  – ABC launch no later than: May 2027
  – (i.e. 7 month schedule slip, cost increase of $382M to both MA and ABC)
Critical Design Review

• What is the CDR?
  – One of a series of a half-dozen “Lifecycle Reviews”

• What has to be demonstrated at CDR?
  – All designs completed.
  – All trade studies completed.
  – Prototypes of all new designs built and tested.
  – All interface control and manufacturing documents/drawings completed.
  – Tests of prototypes demonstrate that requirements are met with requisite margins
  – Test plans must be mature
    • Test plans comprehensively address all requirements
    • Test facilities available
    • Test equipment is available or has appropriate plans for development
    • Staffing is in place
  – Schedule is complete and supports launch date with requisite margin
    • Integrated master schedule contains all activities with links, including all partners
      – Can be tens of thousands of events
    • Planned resources supports the integrated master schedule
      – Budgets, staffing, facilities...
Critical Design Review

- The lifecycle reviews are not an event, but a process.
- NASA HQ charters a Standing Review Board (SRB) to conduct these reviews.
- The CDR itself was 6 days, covering the spacecraft and the mission as a whole.
- Close to 100 Engineering Peer Reviews are held in advance of the CDR.
  - Panels typically include a subset of SRB members.
  - The CDR provides the big picture view; the detailed technical review occurs in the EPRs.
- The meeting part of the review focused largely on a summary of the technical aspects.
- In parallel, the project works with the SRB over a period of months to brief them on the details of the budget and the integrated master schedule.
- The SRB performs an independent assessment of the budget and schedule.
- Following the CDR, the SRB reports at the following series of meetings:
  - Goddard Center Management Council - planned 11/23
    • Goddard decides on baseline to recommend for proceeding with the mission.
  - NASA HQ Science Mission Directorate Program Management Council (DPMC) – planned 12/7
    • SMD decides on baseline to recommend for proceeding with the mission.
  - NASA HQ Agency Program Management Council (APMC) – planned 1/20
    • This is where final updates to the budget and schedule for the mission are determined.
Critical Design Review Outcome

• We passed!
  – Findings include 14 Strengths, 1 Issue, 17 Concerns and 13 Observations

• Independent cost and schedule assessment find mission is achievable within ABC cost and schedule with high confidence

• Issue – inadequate project reserves within MA cost and schedule
  – Outcome of CMC, DPMC and APMC is likely to shift MA launch date by a few months; no change to ABC